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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/816,287	03/21/2001	Vladislav Vashchenko	75292/10417	6106

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EXAMINER

PRENTY, MARK V

ART UNIT	PAPER NUMBER
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2822

DATE MAILED: 05/28/2003

17

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.
09/816,287

Applicant(s)
VASHCHENKO et al.

Examiner
Prenty

Art Unit
2822



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE three MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on May 14, 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 4-6, 17, and 18 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 4-6 is/are allowed.
- 6) ☒ Claim(s) 17 and 18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
*See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____ 6) ☐ Other:

This Office Action is in response to the amendment filed May 14, 2003. That amendment has been entered.

Claims 17 and 18 are rejected under 35 U.S.C. §103(a) as being unpatentable over Prior Art Fig. 1 together with Huang (newly cited United States Patent 6,509,585).

With respect to independent claim 17, Prior Art Fig. 1 illustrates an SCR ESD protection structure 100 which includes a semiconductor material 110 of a first conductivity type, the semiconductor material having a dopant concentration; a well 112 of a second conductivity type formed in the semiconductor material, the well having a dopant concentration; a first region 114 of the second conductivity type formed in the well, the first region having a dopant concentration greater than the dopant concentration of the well, the first region being connected to a first node 120; a second region 116 of the first conductivity type formed in the well, the second region having a dopant concentration greater than the dopant concentration of the semiconductor material, the second region being connected to the first node; a third region 122 of the second conductivity type formed in the semiconductor material, the third region having a dopant concentration greater than the dopant concentration of the well, the third region being connected to a second node 126, and a fourth region 124 of the first conductivity type formed in the semiconductor material, the fourth region having a dopant concentration greater than the dopant concentration of the semiconductor material, the fourth region being connected to the second node.

The difference between Prior Art Fig. 1's SCR ESD protection structure and claim 1 is claim 1 recites adjusting the holding (latchup) voltage of its SCR ESD protection structure by adjusting the size of the second region.

Huang teaches adjusting the holding (latchup) voltage of an SCR ESD

protection structure by adjusting the size of its second region. More specifically, Huang teaches advantageously lowering the holding (latchup) voltage of an SCR ESD protection structure (the advantage being that the ESD protection turns on more easily) by increasing the size of the second region at the ESD-event pad (see the entire patent, particularly column 3, line 16, through column 4, line 5, and note Fig. 5's analogous second region 104a).

It would have been obvious to one skilled in this art to adjust (lower) the holding (latchup) voltage of Prior Art Fig. 1's SCR ESD protection structure by adjusting (increasing) the size of second region 116, in order to have the ESD protection turn on more easily as taught by Huang.

Claim 17 is thus rejected under 35 U.S.C. §103(a) as being unpatentable over Prior Art Fig. 1 together with Huang.

With respect to dependent claim 18, Huang further teaches that the holding (latchup) voltage of an SCR ESD protection structure can also be advantageously lowered (again, the advantage being that the ESD protection turns on more easily) by increasing the size of the third region at the ESD-event pad (see the entire patent, particularly column 3, line 16, through column 4, line 5, and note Fig. 5's analogous third region 102a).

It would have been further obvious to one skilled in this art to adjust (lower) the holding (latchup) voltage of Prior Art Fig. 1's SCR ESD protection structure by also adjusting (increasing) the size of third region 122, in order to have the ESD protection turn on more easily as taught by Huang.

Claim 18 is thus rejected under 35 U.S.C. §103(a) as being unpatentable over Prior Art Fig. 1 together with Huang.

Claims 4-6 are allowable over the prior art of record.

Registered practitioners can telephone examiner Prenty at (703) 308-4939. Any voicemail message left for the examiner must include the name and registration number of the registered practitioner calling, and the application's Serial Number. Technology Center 2800's general telephone number is (703) 308-0956.

Mark Prenty
Mark V. Prenty
Primary Examiner